

28. Juni 1999

SEQUENCE LISTING

<110> Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V.

<120> Novel means and methods for the preparation and  
activation of nucleoside and nucleotide based drugs

<130> B3270PCT

<140> PCT/EP99/00945

<141> 1999-02-12

<150> EP 98 10 2546.3

<151> 1998-02-13

<160> 15

<170> PatentIn Ver. 2.1

<210> 1

<211> 240

<212> PRT

<213> African swine fever virus

<400> 1

Met Arg Gly Ile Leu Ile Thr Ile Glu Gly Ile Asn Gly Val Gly Lys  
1 5 10 15

Ser Thr Gln Ala Met Arg Leu Lys Lys Ala Leu Glu Cys Met Asp Tyr  
20 25 30

Asn Ala Val Cys Ile Arg Phe Pro Asn Pro Asp Thr Thr Thr Gly Gly  
35 40 45

Leu Ile Leu Gln Val Leu Asn Lys Met Thr Glu Met Ser Ser Glu Gln  
50 55 60

Leu His Lys Leu Phe Thr Lys His His Ser Glu Phe Ser Ala Glu Ile  
65 70 75 80

Ala Ala Leu Leu Lys Leu Asn Phe Ile Val Ile Val Asp His Tyr Ile  
85 90 95

Trp Ser Gly Leu Ala Tyr Ala Gln Ala Asp Gly Ile Thr Ile Glu Thr  
100 105 110

Lys Asn Ile Phe Lys Pro Asp Tyr Thr Phe Phe Leu Ser Ser Lys Lys  
115 120 125

Pro Leu Asn Glu Lys Pro Leu Thr Leu Gln Arg Leu Phe Glu Thr Lys  
130 135 140

Glu Lys Gln Glu Thr Ile Phe Thr Asn Phe Thr Ile Ile Met Asn Asp  
145 150 155 160

Val Pro Lys Asn Arg Leu Cys Ile Ile Pro Ala Thr Leu Asn Lys Glu  
165 170 175

0952101.012000  
PCT/PTO 10 AUG 2000

Sub  
B1

Ile Ile His Thr Met Ile Leu Thr Lys Thr Ile Lys Val Phe Asp Asn  
 180 185 190

Asn Ser Cys Leu Asn Tyr Ile Lys Met Tyr Asp Asp Lys Tyr Leu Asn  
 195 200 205

Val Gln Asp Leu Asn Leu Phe Asp Phe Asp Trp Gln Lys Cys Ile Glu  
 210 215 220

Asp Asn Asn Asp Lys Glu Glu Tyr Asp Asp Asp Asp Gly Phe Ile Ile  
 225 230 235 240

<210> 2

<211> 212

<212> PRT

<213> Bacillus subtilis

<400> 2

Met Ser Gly Leu Phe Ile Thr Phe Glu Gly Pro Glu Gly Ala Gly Lys  
 1 5 10 15

Thr Thr Val Leu Gln Glu Ile Lys Asn Ile Leu Thr Ala Glu Gly Leu  
 20 25 30

Gln Val Met Ala Thr Arg Glu Pro Gly Gly Ile Asp Ile Ala Glu Gln  
 35 40 45

Ile Arg Glu Val Ile Leu Asn Glu Asn Asn Ile Leu Met Asp Pro Lys  
 50 55 60

Thr Glu Ala Leu Leu Tyr Ala Ala Ala Arg Arg Gln His Leu Val Glu  
 65 70 75 80

Lys Val Lys Pro Ala Leu Glu Gln Gly Phe Ile Val Leu Cys Asp Arg  
 85 90 95

Phe Ile Asp Ser Pro Leu Ala Tyr Gln Gly Tyr Ala Arg Gly Leu Gly  
 100 105 110

Ile Asp Glu Val Leu Ser Ile Asn Glu Phe Ala Ile Gly Asp Met Met  
 115 120 125

Pro His Val Thr Val Tyr Phe Ser Ile Asp Pro Glu Glu Gly Leu Lys  
 130 135 140

Arg Ile Tyr Ala Asn Gly Ser Arg Glu Lys Asn Arg Leu Asp Leu Glu  
 145 150 155 160

Lys Leu Asp Phe His Thr Lys Val Gln Glu Gly Tyr Gln Glu Leu Met  
 165 170 175

Lys Arg Phe Pro Glu Arg Phe His Ser Val Asp Ala Gly Gln Ser Lys  
 180 185 190

Lys Ile Gln Leu  
210

<211> 213

<212> PRT

<213> Escherichia coli

Met Arg Ser Lys Tyr Ile Val Ile Glu Gly Leu Glu Gly Ala Gly Lys  
1 5 10 15

Arg Asp Met Val Phe Thr Arg Glu Pro Gly Gly Thr Gln Leu Ala Glu  
35 40 45

Ile Thr Asp Lys Ala Glu Val Leu Met Phe Tyr Ala Ala Arg Val Gln  
65 70 75 80

Ile Gly Asp Arg.His Asp Leu Ser Thr Gln Ala Tyr Gln Gly Gly Gly  
100 105 110

Gly Asp Phe Arg Pro Asp Leu Thr Leu Tyr Leu Asp Val Thr Pro Glu  
130 135 140

Gln Glu Ser Phe Asp Phe Phe Asn Arg Thr Arg Ala Arg Tyr Leu Glu  
165 170 175

Leu Ala Ala Gln Asp Lys Ser Ile His Thr Ile Asp Ala Thr Gln Pro  
180 185 190

Leu Glu Ala Val Met Asp Ala Ile Arg Thr Thr<sup>22</sup> Val Thr His Trp Val  
195 200 205

Lys Glu Leu Asp Ala  
210

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

<210> 4  
 <211> 210  
 <212> PRT  
 <213> Haemophilus influenzae

<400> 4  
 Met Lys Gly Lys Phe Ile Val Ile Glu Gly Leu Glu Gly Ala Gly Lys  
   1                  5                  10                  15  
 Ser Ser Ala His Gln Ser Val Val Arg Val Leu His Glu Leu Gly Ile  
           20                  25                  30  
 Gln Asp Val Val Phe Thr Arg Glu Pro Gly Gly Thr Pro Leu Ala Glu  
           35                  40                  45  
 Lys Leu Arg His Leu Ile Lys His Glu Thr Glu Glu Pro Val Thr Asp  
   50                  55                  60  
 Lys Ala Glu Leu Leu Met Leu Tyr Ala Ala Arg Ile Gln Leu Val Glu  
   65                  70                  75                  80  
 Asn Val Ile Lys Pro Ala Leu Met Gln Gly Lys Trp Val Val Gly Asp  
           85                  90                  95  
 Arg His Asp Met Ser Ser Gln Ala Tyr Gln Gly Gly Gly Arg Gln Leu  
           100                  105                  110  
 Asp Pro His Phe Met Leu Thr Leu Lys Glu Thr Val Leu Gly Asn Phe  
           115                  120                  125  
 Glu Pro Asp Leu Thr Ile Tyr Leu Asp Ile Asp Pro Ser Val Gly Leu  
   130                  135                  140  
 Ala Arg Ala Arg Gly Arg Gly Glu Leu Asp Arg Ile Glu Gln Met Asp  
  145                  150                  155                  160  
 Leu Asp Phe Phe His Arg Thr Arg Ala Arg Tyr Leu Glu Leu Val Lys  
           165                  170                  175  
 Asp Asn Pro Lys Ala Val Val Ile Asn Ala Glu Gln Ser Ile Glu Leu  
           180                  185                  190  
 Val Gln Ala Asp Ile Glu Ser Ala Val Lys Asn Trp Trp Lys Ser Asn  
  195                  200                  205  
 Glu Lys  
   210

<210> 5  
 <211> 212  
 <212> PRT  
 <213> Homo sapiens

<400> 5  
 Met Ala Ala Arg Arg Gly Ala Leu Ile Val Leu Glu Gly Val Asp Arg

1                      5                      10                      15

Ala Gly Lys Ser Thr Gln Ser Arg Lys Leu Val Glu Ala Leu Cys Ala  
20                      25                      30

Ala Gly His Arg Ala Glu Leu Leu Arg Phe Pro Glu Arg Ser Thr Glu  
35                      40                      45

Ile Gly Lys Leu Leu Ser Ser Tyr Leu Gln Lys Lys Ser Asp Val Glu  
50                      55                      60

Asp His Ser Val His Leu Leu Phe Ser Ala Asn Arg Trp Glu Gln Val  
65                      70                      75                      80

Pro Leu Ile Lys Glu Lys Leu Ser Gln Gly Val Thr Leu Val Val Asp  
85                      90                      95

Arg Tyr Ala Phe Ser Gly Val Ala Phe Thr Gly Ala Lys Glu Asn Phe  
100                      105                      110

Ser Leu Asp Trp Cys Lys Gln Pro Asp Val Gly Leu Pro Lys Pro Asp  
115                      120                      125

Leu Val Leu Phe Leu Gln Leu Gln Leu Ala Asp Ala Ala Lys Arg Gly  
130                      135                      140

Ala Phe Gly His Glu Arg Tyr Glu Asn Gly Ala Phe Gln Glu Arg Ala  
145                      150                      155                      160

Leu Arg Cys Phe His Gln Leu Met Lys Asp Thr Thr Leu Asn Trp Lys  
165                      170                      175

Met Val Asp Ala Ser Lys Arg Leu Glu Ala Val His Glu Glu Leu Arg  
180                      185                      190

Val Leu Ser Glu Asp Ala Ile Arg Thr Ala Thr Glu Lys Pro Leu Gly  
195                      200                      205

Glu Leu Trp Lys  
210

<210> 6  
<211> 188  
<212> PRT  
<213> Methanococcus jannaschii

<400> 6  
Met Val Asp Asn Met Phe Ile Val Phe Glu Gly Ile Asp Gly Ser Gly  
1                      5                      10                      15

Lys Thr Thr Gln Ser Lys Leu Leu Ala Lys Lys Met Asp Ala Phe Trp  
20                      25                      30

Thr Tyr Glu Pro Ser Asn Ser Leu Val Gly Lys Ile Ile Arg Glu Ile  
35                      40                      45

Leu Ser Gly Lys Thr Glu Val Asp Asn Lys Thr Leu Ala Leu Leu Phe  
50 55 60

Ala Ala Asp Arg Ile Glu His Thr Lys Leu Ile Lys Glu Glu Leu Lys  
65 70 75 80

Lys Arg Asp Val Val Cys Asp Arg Tyr Leu Tyr Ser Ser Ile Ala Tyr  
85 90 95

Gln Ser Val Ala Gly Val Asp Glu Asn Phe Ile Lys Ser Ile Asn Arg  
100 105 110

Tyr Ala Leu Lys Pro Asp Ile Val Phe Leu Leu Ile Val Asp Ile Glu  
115 120 125

Thr Ala Leu Lys Arg Val Lys Thr Lys Asp Ile Phe Glu Lys Lys Asp  
130 135 140

Phe Leu Lys Lys Val Gln Asp Lys Tyr Leu Glu Leu Ala Glu Glu Tyr  
145 150 155 160

Asn Phe Ile Val Ile Asp Thr Thr Lys Lys Ser Val Glu Glu Val His  
165 170 175

Asn Glu Ile Ile Gly Tyr Leu Lys Asn Ile Pro His  
180 185

<210> 7

<211> 227

<212> PRT

<213> Mus musculus

<400> 7

Met Ala Ser Arg Arg Gly Ala Leu Ile Val Leu Glu Gly Val Asp Arg  
1 5 10 15

Ala Gly Lys Thr Thr Gln Gly Leu Lys Leu Val Thr Ala Leu Cys Ala  
20 25 30

Ser Gly His Arg Ala Glu Leu Leu Arg Phe Pro Glu Arg Ser Thr Glu  
35 40 45

Ile Gly Lys Leu Leu Asn Ser Tyr Leu Glu Lys Lys Thr Glu Leu Glu  
50 55 60

Asp His Ser Val His Leu Leu Phe Ser Ala Asn Arg Trp Glu Gln Val  
65 70 75 80

Pro Leu Ile Lys Ala Lys Leu Asn Gln Gly Val Thr Leu Val Leu Asp  
85 90 95

Arg Tyr Ala Phe Ser Gly Val Ala Phe Thr Gly Ala Lys Glu Asn Phe  
100 105 110

Ser Leu Asp Trp Cys Lys Gln Pro Asp Val Gly Leu Pro Lys Pro Asp  
115 120 125

00553101 011001

Leu Ile Leu Phe Leu Gln Leu Gln Leu Leu Asp Ala Ala Ala Arg Gly  
 130 135 140  
 Glu Phe Gly Leu Glu Arg Tyr Glu Thr Gly Thr Phe Gln Lys Gln Val  
 145 150 155 160  
 Leu Leu Cys Phe Gln Gln Leu Met Glu Glu Lys Asn Leu Asn Trp Lys  
 165 170 175  
 Val Val Asp Ala Ser Lys Arg Thr Pro Ser Glu Thr Leu His Arg Gly  
 180 185 190  
 His Trp Gly Ser Tyr Gly Asn Lys Ser Ala Ser Ile Ala Asn Thr Ile  
 195 200 205  
 Phe Trp Phe Cys Lys Arg Leu Val Glu Gly Ser His Leu Tyr Thr Ile  
 210 215 220  
 Ser Arg Ser  
 225

<210> 8  
 <211> 210  
 <212> PRT  
 <213> Mycoplasma pneumoniae

<400> 8  
 Met Lys Gln Gly Val Phe Val Ala Ile Glu Gly Val Asp Gly Ala Gly  
 1 5 10 15  
 Lys Thr Val Leu Leu Glu Ala Phe Lys Gln Arg Phe Pro Gln Ser Phe  
 20 25 30  
 Leu Gly Phe Lys Thr Leu Phe Ser Arg Glu Pro Gly Gly Thr Pro Leu  
 35 40 45  
 Ala Glu Lys Ile Arg Ala Leu Leu Leu His Glu Ala Met Glu Pro Leu  
 50 55 60  
 Thr Glu Ala Tyr Leu Phe Ala Ala Ser Arg Thr Glu His Val Arg Gln  
 65 70 75 80  
 Leu Ile Gln Pro Ala Leu Gln Gln Lys Gln Leu Val Ile Val Asp Arg  
 85 90 95  
 Phe Val Trp Ser Ser Tyr Ala Tyr Gln Gly Leu Ile Lys Lys Val Gly  
 100 105 110  
 Leu Asp Val Val Lys Lys Leu Asn Ala Asp Ala Val Gly Asp Ser Met  
 115 120 125  
 Pro Asp Phe Thr Phe Ile Val Asp Cys Asp Phe Glu Thr Ala Leu Asn  
 130 135 140  
 Arg Met Ala Lys Arg Gly Gln Asp Asn Leu Leu Asp Asn Thr Val Lys

145                      150                      155                      160  
 Lys Gln Ala Asp Phe Asn Thr Met Arg Gln Tyr Tyr His Ser Leu Val  
                                  165                                   170                                   175  
 Asp Asn Lys Arg Val Phe Leu Leu Asp Gly Gln Asn Gln Thr Gly Cys  
                                  180                                   185                                   190  
 Leu Glu Gln Phe Ile Glu Gln Leu Ser Gln Cys Leu Thr Gln Pro Thr  
                                  195                                   200                                   205  
 Leu Ser  
                                  210

<210> 9  
 <211> 210  
 <212> PRT  
 <213> Mycoplasma genitalium

<400> 9  
 Met Asn Lys Gly Val Phe Val Val Ile Glu Gly Val Asp Gly Ala Gly  
                                  1                                   5                                   10                                   15  
 Lys Thr Ala Leu Ile Glu Gly Phe Lys Lys Leu Tyr Pro Thr Lys Phe  
                                  20                                   25                                   30  
 Leu Asn Tyr Gln Leu Thr Tyr Thr Arg Glu Pro Gly Gly Thr Leu Leu  
                                  35                                   40                                   45  
 Ala Glu Lys Ile Arg Gln Leu Leu Leu Asn Glu Thr Met Glu Pro Leu  
                                  50                                   55                                   60  
 Thr Glu Ala Tyr Leu Phe Ala Ala Ala Arg Thr Glu His Ile Ser Lys  
                                  65                                   70                                   75                                   80  
 Leu Ile Lys Pro Ala Ile Glu Lys Glu Gln Leu Val Ile Ser Asp Arg  
                                  85                                   90                                   95  
 Phe Val Phe Ser Ser Phe Ala Tyr Gln Gly Leu Ser Lys Lys Ile Gly  
                                  100                                   105                                   110  
 Ile Asp Thr Val Lys Gln Ile Asn His His Ala Leu Arg Asn Met Met  
                                  115                                   120                                   125  
 Pro Asn Phe Thr Phe Ile Leu Asp Cys Asn Phe Lys Glu Ala Leu Gln  
                                  130                                   135                                   140  
 Arg Met Gln Lys Arg Gly Asn Asp Asn Leu Leu Asp Glu Phe Ile Lys  
                                  145                                   150                                   155                                   160  
 Gly Lys Asn Asp Phe Asp Thr Val Arg Ser Tyr Tyr Leu Ser Leu Val  
                                  165                                   170                                   175  
 Asp Lys Lys Asn Cys Phe Leu Ile Asn Gly Asp Asn Lys Gln Glu His  
                                  180                                   185                                   190



Leu Glu Lys Phe Ile Glu Leu Leu Thr Arg Cys Leu Gln Gln Pro Thr  
 195 200 205

His Tyr  
 210

<210> 10  
 <211> 210  
 <212> PRT  
 <213> Schizosaccharomyces pombe

<400> 10  
 Met Ser Lys Gln Asn Arg Gly Arg Leu Ile Val Ile Glu Gly Leu Asp  
 1 5 10 15

Arg Ser Gly Lys Ser Thr Gln Cys Gln Leu Leu Val Asp Lys Leu Ile  
 20 25 30

Leu Asn Met Lys Arg Leu Lys Leu Phe Lys Phe Pro Asp Arg Thr Thr  
 35 40 45

Ala Ile Gly Lys Lys Ile Asp Asp Tyr Leu Thr Glu Ser Val Gln Leu  
 50 55 60

Asn Asp Gln Val Ile His Leu Leu Phe Ser Ala Asn Arg Trp Glu Pro  
 65 70 75 80

Ser Ile Tyr Tyr Arg Ala Asn Gln Gln Arg Cys Asn Cys Ile Leu Asp  
 85 90 95

Arg Tyr Ala Phe Ser Gly Ile Ala Phe Ser Ala Ala Lys Gly Leu Asp  
 100 105 110

Trp Glu Trp Cys Lys Ser Pro Asp Arg Gly Leu Thr Arg Pro Asp Leu  
 115 120 125

Val Ile Phe Leu Asn Val Asp Pro Arg Ile Ala Ala Thr Arg Gly Gln  
 130 135 140

Tyr Gly Glu Glu Arg Tyr Glu Lys Ile Glu Met Gln Glu Lys Val Leu  
 145 150 155 160

Lys Asn Leu Gln Arg Leu Gln Lys Glu Phe Arg Glu Glu Gly Leu Glu  
 165 170 175

Phe Ile Thr Leu Asp Ala Ser Ser Tyr Ala Leu Glu Asp Val Asp Ser  
 180 185 190

Gln Ile Val Asp Leu Val Ser Asn Val Asn Ile His Glu Thr Leu Asp  
 195 200 205

Val Leu  
 210

<210> 11

<211> 204  
 <212> PRT  
 <213> Vaccinia virus

<400> 11

Met Ser Arg Gly Ala Leu Ile Val Phe Glu Gly Leu Asp Lys Ser Gly  
 1 5 10 15  
 Lys Thr Thr Gln Cys Met Asn Ile Met Glu Ser Ile Pro Ala Asn Thr  
 20 25 30  
 Ile Lys Tyr Leu Asn Phe Pro Gln Arg Ser Thr Val Thr Gly Lys Met  
 35 40 45  
 Ile Asp Asp Tyr Leu Thr Arg Lys Lys Thr Tyr Asn Asp His Ile Val  
 50 55 60  
 Asn Leu Leu Phe Cys Ala Asn Arg Trp Glu Phe Ala Ser Phe Ile Gln  
 65 70 75 80  
 Glu Gln Leu Glu Gln Gly Ile Thr Leu Ile Val Asp Arg Tyr Ala Phe  
 85 90 95  
 Ser Gly Val Ala Tyr Ala Ala Ala Lys Gly Ala Ser Met Thr Leu Ser  
 100 105 110  
 Lys Ser Tyr Glu Ser Gly Leu Pro Lys Pro Asp Leu Val Ile Phe Leu  
 115 120 125  
 Glu Ser Gly Ser Lys Glu Ile Asn Arg Asn Val Gly Glu Glu Ile Tyr  
 130 135 140  
 Glu Asp Val Thr Phe Gln Gln Lys Val Leu Gln Glu Tyr Lys Lys Met  
 145 150 155 160  
 Ile Glu Glu Gly Asp Ile His Trp Gln Ile Ile Ser Ser Glu Phe Glu  
 165 170 175  
 Glu Asp Val Lys Lys Glu Leu Ile Lys Asn Ile Val Ile Glu Ala Ile  
 180 185 190  
 His Thr Val Thr Gly Pro Val Gly Gln Leu Trp Met  
 195 200

<210> 12  
 <211> 205  
 <212> PRT  
 <213> Variola virus

<400> 12

Met Ser Arg Gly Ala Leu Ile Val Phe Glu Gly Leu Asp Lys Ser Gly  
 1 5 10 15  
 Lys Thr Thr Gln Cys Met Asn Ile Met Glu Ser Ile Pro Thr Asn Thr  
 20 25 30

Ile Lys Tyr Leu Asn Phe Pro Gln Arg Ser Thr Val Thr Gly Lys Met  
 35 40 45  
 Ile Asp Asp Tyr Leu Thr Arg Lys Lys Thr Tyr Asn Asp His Ile Val  
 50 55 60  
 Asn Leu Leu Phe Cys Ala Asn Arg Trp Glu Phe Ala Ser Phe Ile Gln  
 65 70 75 80  
 Glu Gln Leu Glu Gln Gly Ile Thr Leu Ile Val Asp Arg Tyr Ala Phe  
 85 90 95  
 Ser Gly Val Ala Tyr Ala Thr Ala Lys Gly Ala Ser Met Thr Leu Ser  
 100 105 110  
 Lys Ser Tyr Glu Ser Gly Leu Pro Lys Pro Asp Leu Val Ile Phe Leu  
 115 120 125  
 Glu Ser Gly Ser Lys Glu Ile Asn Arg Asn Val Gly Glu Glu Ile Tyr  
 130 135 140  
 Glu Asp Val Ala Phe Gln Gln Lys Val Leu Gln Glu Tyr Lys Lys Met  
 145 150 155 160  
 Ile Glu Glu Gly Glu Asp Ile His Trp Gln Ile Ile Ser Ser Glu Phe  
 165 170 175  
 Glu Glu Asp Val Lys Lys Glu Leu Ile Lys Asn Ile Val Ile Glu Ala  
 180 185 190  
 Ile His Thr Val Thr Gly Pro Val Gly Gln Leu Trp Met  
 195 200 205

<210> 13  
 <211> 216  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 13  
 Met Met Gly Arg Gly Lys Leu Ile Leu Ile Glu Gly Leu Asp Arg Thr  
 1 5 10 15  
 Gly Lys Thr Thr Gln Cys Asn Ile Leu Tyr Lys Lys Leu Gln Pro Asn  
 20 25 30  
 Cys Lys Leu Leu Lys Phe Pro Glu Arg Ser Thr Arg Ile Gly Gly Leu  
 35 40 45  
 Ile Asn Glu Tyr Leu Thr Asp Asp Ser Phe Gln Leu Ser Asp Gln Ala  
 50 55 60  
 Ile His Leu Leu Phe Ser Ala Asn Arg Trp Glu Ile Val Asp Lys Ile  
 65 70 75 80  
 Lys Lys Asp Leu Leu Glu Gly Lys Asn Ile Val Met Asp Arg Tyr Val  
 85 90 95

Tyr Ser Gly Val Ala Tyr Ser Ala Ala Lys Gly Thr Asn Gly Met Asp  
 100 105 110

Leu Asp Trp Cys Leu Gln Pro Asp Val Gly Leu Leu Lys Pro Asp Leu  
 115 120 125

Thr Leu Phe Leu Ser Thr Gln Asp Val Asp Asn Asn Ala Glu Lys Ser  
 130 135 140

Gly Phe Gly Asp Glu Arg Tyr Glu Thr Val Lys Phe Gln Glu Lys Val  
 145 150 155 160

Lys Gln Thr Phe Met Lys Leu Leu Asp Lys Glu Ile Arg Lys Gly Asp  
 165 170 175

Glu Ser Ile Thr Ile Val Asp Val Thr Asn Lys Gly Ile Gln Glu Val  
 180 185 190

Glu Ala Leu Ile Trp Gln Ile Val Glu Pro Val Leu Ser Thr His Ile  
 195 200 205

Asp His Asp Lys Phe Ser Phe Phe  
 210 215

<210> 14  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic, no  
 natural origin, hypothetical

<400> 14  
 ggaattccat atgcgcagta agtatatcgt c

31

<210> 15  
 <211> 34  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: synthetic, no  
 natural origin, hypothetical

<400> 15  
 cgcggtacct catgcgtcca actccttcac ccag

34

005210-012560